

**MULTI-CHIP MEMORY DEVICES, MODULES AND CONTROL METHODS
INCLUDING INDEPENDENT CONTROL OF MEMORY CHIPS**

Abstract of the Disclosure

- Multi-chip memory devices include at least two integrated circuit memory chips, each of which includes corresponding address pads, data pads and control signal pads, and a common package that encapsulates the at least two integrated
- 5 circuit memory chips, and that includes external terminals. An internal connection circuit in the common package is configured to connect at least one of the corresponding control signal pads of each of the integrated circuit memory chips to separate ones of the external terminals, to allow independent external control of each of the integrated circuit memory chips that are encapsulated in the common package.
- 10 Multi-chip memory devices may be combined to form memory modules. The memory modules include a memory module substrate having first and second opposing surfaces. At least one multi-chip memory device, as described above, is provided on the first surface and on the second surface.